NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

NOAA In Your State

Wisconsin

***NOAA** is an agency that enriches life through science. Our reach goes from the surface of the sun to the depths of the ocean floor as we work to keep citizens informed of the changing environment around them. From daily weather forecasts, severe storm warnings, and climate monitoring to fisheries management, coastal restoration and supporting marine commerce, NOAA's products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers and other decision makers with reliable information they need when they need it.*

The following is a summary of NOAA facilities, staff, programs, or activities based in, or focused on, your state or territory: Starting with highlights, then by congressional districts and cities or towns, and then statewide programs.

Highlights of NOAA in Wisconsin

Cooperative Institute for Meteorological Satellite Studies	Madison	WI-2
Advanced Satellite Products Branch	Madison	WI-2
Cooperative Institute for Meteorological Satellite Studies (CIMSS)	Madison	WI-2
St. Louis River Estuary Habitat Focus Area	St. Louis River Estuary	WI-7
Lake Superior National Estuarine Research Reserve	Superior	WI-7

The state of Wisconsin also has three Weather Forecasting Offices, two Science on a Sphere® exhibitions, a Regional Geodetic Adviser, a Sea Grant Program, and several observation platforms.

Weather Forecast Offices

La Crosse WI-3

Milwaukee WI-5

Green Bay WI-8

National Weather Service (NWS) Weather Forecast Offices (WFO) are staffed 24/7/365 and provide weather, water, and climate forecasts and warnings to residents of Wisconsin. There are 122 WFOs nationwide of which three are in Wisconsin. Highly trained forecasters issue warnings and forecasts for weather events, including severe thunderstorms, tornadoes, hurricanes, winter storms, floods, and heat waves to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including wireless emergency alerts, social media,weather.gov, and NOAA Weather Radio All Hazards. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs that strengthen working relationships with local partners in emergency management, government, the media and academic communities. Forecasters provide Impact-based Decision Support Services (IDSS), both remotely and on-site during critical emergencies such as wildfires, floods, chemical spills, and major recovery efforts. To gather data for forecasting and other purposes, NWS WFO staff monitor, maintain and use Automated Surface Observing Stations and Doppler Weather Radar. In addition to the WFOs, NWS operates specialized national prediction centers and regional headquarters throughout the U.S. for a total of 168 operational units. Over 85% of NWS' workforce is in the field. For current Wisconsin weather, visit www.weather.gov and, on the national map, click on the relevant county or district.

Science On a Sphere®

Monona WI-2

Sheboygan WI-6

Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain in a way that is simultaneously intuitive and captivating what are sometimes complex environmental processes. They are located at the Aldo Leopold Nature Center and the Spaceport Sheboygan.

WI-2

Madison

National Environmental Satellite, Data, and Information Service (NESDIS) - Center for Satellite Applications and Research - Cooperative Institute for Meteorological Satellite Studies

The Cooperative Institute for Meteorological Satellite Studies (CIMSS) was established at the University of Wisconsin-Madison in Madison, Wisconsin. As part of the UW-Madison Space Science and Engineering Center, CIMSS collaborates with NOAA to conduct cutting-edge research in the specification, testing and evaluation of new satellite instruments, in the development of techniques to derive and apply meteorological parameters from the available satellite

measurements, and in the assessment of the impact of new remote sensing data and products on weather analyses and forecasts and as long-term climate data records.

National Environmental Satellite, Data, and Information Service (NESDIS) - Center for Satellite Applications and Research - Advanced Satellite Products Branch
The Advanced Satellite Products Branch (ASPB), within the Center for Satellite Applications and Research (STAR) in the National Environmental Satellite, Data, and Information Service (NESDIS), is physically collocated with the Cooperative Institute for Meteorological Satellite Studies (CIMSS) on the University of Wisconsin-Madison campus. The ASPB conducts research and development activities in collaboration with university scientists within CIMSS on the broad theme of meteorological satellite studies related to weather and climate. This relationship between the university and ASPB enables NOAA to adopt demonstrated research techniques for deriving atmospheric information from remote sensing data for broader distribution to the science community.

Monona

Office of Oceanic and Atmospheric Research (OAR) - Science On a Sphere® - See Page 2 for detail.

WI-3

La Crosse

National Weather Service (NWS) - Weather Forecast Office (WFO) - See Page 2 for detail.

National Ocean Service (NOS) – Regional Geodetic Advisor
The Regional Geodetic Advisor is a National Ocean Service (NOS) employee that resides in a region and serves as a liaison between the National Geodetic Survey (NGS) and its public, academic and private sector constituents within their assigned region. NGS has a Regional Geodetic Advisor stationed in Ann Arbor, Michigan serving the Great Lakes region including Wisconsin. The Geodetic Advisor provides training, guidance and assistance to constituents managing geospatial activities that are tied to the National Spatial Reference System (NSRS), the framework and coordinate system for all positioning activities in the Nation. The Geodetic Advisor serves as a subject matter expert in geodesy and regional geodetic issues, collaborating internally across NOS and NOAA to ensure that all regional geospatial activities are properly referenced to the NSRS.

WI-4

Milwaukee

National Weather Service (NWS) - Weather Forecast Office (WFO) - See Page 2 for detail.

Office of Oceanic and Atmospheric Research (OAR) - Real-Time Meteorological Observation Network
The Great Lakes Environmental Research Laboratory (GLERL)'s Marine Instrumentation Laboratory has deployed and is maintaining a real-time network of shore-based meteorological instrument packages including a location at Milwaukee. The meteorological observations obtained from the network are being used in GLERL's Great Lakes Coastal Forecasting System to improve nowcasts and forecasts of wind, waves, water levels, and circulation. The Milwaukee station measures/records wind speed, wind gust, wind direction, and air temperature at 5-minute increments, and this information is updated hourly.

Office of Oceanic and Atmospheric Research (OAR) - Real-time Environmental Coastal Observation Network Stations
The Great Lakes Environmental Research Laboratory's Marine Instrumentation Laboratory has deployed and is maintaining a real-time network of shore-based meteorological instrument packages, including one in Milwaukee. The

meteorological observations obtained from the network are being used in GLERL's Great Lakes Coastal Forecasting System to improve nowcasts and forecasts of wind, waves, water levels, ice cover and circulation. In addition, the National Weather Service forecast office in Milwaukee is using the observations to improve marine forecasts and warnings. The Milwaukee station measures/records wind speed, wind gust, wind direction, and air temperature at five-minute increments that are updated every 15 minutes on the web.

WI-6
Sheboygan

Office of Oceanic and Atmospheric Research (OAR) - Science On a Sphere® - See Page 2 for detail.

National Ocean Service (NOS) - Proposed Wisconsin Shipwreck Coast National Marine Sanctuary

In October 2015, in response to a community-based sanctuary nomination, NOAA announced its intent to designate a new national marine sanctuary in Lake Michigan to conserve nationally-significant shipwrecks. With input from the public, industry stakeholders, and in close consultation with the state of Wisconsin, NOAA has published a final environmental impact statement and final management plan for the proposed Wisconsin Shipwreck Coast National Marine Sanctuary. NOAA is preparing a final rule, which includes sanctuary regulations, definitions, and detailed responses to public comments. Upon publication of the final rule, Congress and the governor will have 45 days of continuous congressional session to review the documents. At the end of this 45-day period, the sanctuary designation would become effective. The proposed 962-square-mile Wisconsin Shipwreck Coast National Marine Sanctuary would protect 36 shipwrecks that possess exceptional historic, archaeological, and recreational value. Historical research suggests that nearly 60 shipwrecks are yet to be discovered in the sanctuary. Co-managed with the state of Wisconsin, the sanctuary would expand on the state's 30-year stewardship of these historic sites, bringing new opportunities for research, resource protection, educational programming, and community engagement. In partnership with local communities, the sanctuary would provide a national stage for promoting heritage tourism and recreation.

WI-7
Necedah National Wildlife Refuge

Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

Park Falls

Office of Oceanic and Atmospheric Research (OAR) - Tall Tower Carbon Measurements

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates trace gas monitoring sites at tall television transmitter towers, and other towers, in eight states, including Wisconsin. The sites were established to extend ESRL/GML's monitoring network into the interior of North America in order to provide data to aid estimation of the net carbon balance of the continent. Variations of trace gases, especially carbon dioxide (CO_2), are largest near the ground, so existing tall (> 400 meters) transmitter towers are utilized as platforms for in situ and flask sampling for atmospheric trace gases. The tower site in Wisconsin is located within the Chequamegon National Forest, near Park Falls.

Office of Oceanic and Atmospheric Research (OAR) - Carbon Cycle Gases and Halocarbons

NOAA's Earth System Research Laboratory Global Monitoring Laboratory (ESRL/GML) operates a small aircraft-based North American network of sampling sites to measure vertical profiles of important greenhouse gas concentrations. Air is sampled above the surface up to approximately 25,000 feet above sea level using a relatively small, light, and economical automated system developed by ESRL/GML researchers. These air samples are delivered to ESRL/GML in Boulder, Colorado for measurements of CO2, CH4, and other greenhouse gasses. This data will improve understanding and models of the global carbon cycle. Sampling is conducted bi-weekly. Some air samples from the small aircraft program are also analyzed for halocarbon gases that can destroy the stratospheric ozone layer. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer so it can protect us from the sun's ultraviolet radiation.

St. Louis River Estuary

National Marine Fisheries Service (NMFS), National Ocean Service (NOS), Office of Oceanic and Atmospheric Research (OAR), National Weather Service (NWS), National Centers for Environmental Information/Regional Climate Services (NESDIS) - St. Louis River Estuary Habitat Focus Area

As part of the Habitat Blueprint administered by the NOAA Fisheries Office of Habitat Conservation, NOAA has selected ten Habitat Focus Areas (HFAs), place-based locations across the country to maximize the effectiveness of habitat conservation. While each HFA focuses on individual habitat conservation goals outlined in their Implementation Plan, the overarching goal is to demonstrate results in a focused area in a short time period. The St. Louis River Estuary has been selected as a Habitat Focus Area under NOAA's Habitat Blueprint. The St. Louis River is a major tourism draw and home to the country's busiest and largest bulk inland port. Current and former industry has left a legacy of toxic substances, along with extensive habitat alteration and degradation. NOAA is bringing its expertise in flood and weather forecasting, integrated monitoring, habitat protection and restoration, stakeholder education, and coastal management to the restoration effort to address loss of fish and wildlife habitat and sport fisheries, assess impacts of climate on aquatic and nearshore vegetation, reducing the risk of flooding through improved planning and water management strategies, and increasing coastal tourism, access, and recreational opportunities.

Superior

National Ocean Service (NOS) - Lake Superior National Estuarine Research Reserve

The National Estuarine Research Reserve System is a network of protected areas focused on long-term research, monitoring, stewardship, education, and training. NOAA's Office for Coastal Management provides funding and national guidance, and each site is managed on a daily basis by a lead state agency or university with input from local partners. The 16,697 acre Lake Superior Research Reserve was designated in 2010 and is managed by the University of Wisconsin. The reserve is one of two sites representing a freshwater estuary on the Great Lakes.

National Ocean Service (NOS) – Margaret A. Davidson Graduate Fellowship

The Margaret A. Davidson Graduate Fellowship program funds graduate student research and professional development opportunities within the National Estuarine Research Reserve System. The program supports collaborative research addressing local management challenges that may influence future policy and management strategies. The Davidson Fellow at Lake Superior National Estuarine Research Reserve will focus their research on ecosystem condition and human well-being in the St. Louis River estuary.

National Ocean Service (NOS) - Navigation Manager

NOAA's navigation managers work directly with pilots, port authorities, and recreational boating organizations in Michigan. They help identify the navigational challenges facing marine transportation in Michigan and provide NOAA's resources and services that promote safe and efficient navigation. Navigation managers are on call to provide expertise and NOAA

navigation response coordination in case of severe coastal weather events or other marine emergencies. The Office of Coast Survey has a navigation manager in Cleveland, OH, to support mariners and stakeholders in the Great Lakes.

National Ocean Service (NOS) - Navigation Response Team
The Office of Coast Survey (OCS) maintains the nation's nautical charts and publications for U.S. coasts and the Great Lakes. OCS navigation managers are strategically located in U.S. coastal areas to provide regional support to federal and state agencies in order to assist with navigational challenges. The Office of Coast Survey's Navigation Response Branch (NRB) conducts routine and emergency hydrographic surveys; and working with the regional Navigation Managers, navigation response teams (NRT) work around-the-clock after storms to speed the reopening of ports and waterways. During emergency response, the NRTs provide time-sensitive information to the U.S. Coast Guard or port officials, and transmit data to NOAA cartographers for updating the Coast Survey's suite of navigational charts. Mobile integrated survey team (MIST) can be applied to a vessel of opportunity to provide response capability in the Great Lakes.

WI-8
Green Bay
National Weather Service (NWS) - Weather Forecast Office (WFO) - See Page 2 for detail.

Statewide
National Weather Service - NEXRAD (WSR-88D) Systems
NEXRAD is used to warn the people of the United States about dangerous weather and its location. This radar technology allows meteorologists to warn the public to take shelter with more notice than ever before. The NEXRAD network provides significant improvements in severe weather and flash flood warnings, air traffic safety, flow control for air traffic, resource protection at military bases, and management of water, agriculture, forest, and snow removal. NEXRAD radar has a range of up to 250 nautical miles, and can provide information about wind speed and direction, as well as the location, size, and shape of precipitation. There are 159 operational NEXRAD radar systems deployed throughout the United States and overseas, of which three are in Wisconsin

National Weather Service (NWS) - Automated Surface Observing Systems Stations
The Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). ASOS serves as the Nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, updating observations every minute, 24 hours a day, every day of the year observing basic weather elements, such as cloud cover, precipitation, wind, sea level pressure, and conditions, such as rain, snow, freezing rain, thunderstorms, and fog. There are 18 ASOS sites in Wisconsin.

National Weather Service (NWS) - Cooperative Observer Program Sites
The National Weather Service (NWS) Cooperative Observer Program (COOP) is made up of more than 10,000 volunteers who take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The data are representative of where people live, work and play. The COOP was formally created in 1890 under the NWS Organic Act to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes, and to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS. The data are also used by other federal, state and local entities, as well as private companies. In some cases, the data are used to make billions of dollars' worth of decisions. For example, the

energy sector uses COOP data to calculate the Heating and Cooling Degree Days which are used to determine individuals' energy bills monthly. There are 339 COOP sites in Wisconsin.

National Weather Service (NWS) - NOAA Weather Radio All Hazards Transmitters
NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service (NWS) forecast office. NWR broadcasts official NWS warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it the single source for comprehensive weather and emergency information. In conjunction with federal, state, and local emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety. NWR is provided as a public service and includes 1,100 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. There are 28 NWR transmitters in Wisconsin.

NOAA Office of Education — Environmental Literacy Program
NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to build the capacity of institutions and networks to advance NOAA's mission through formal (K-12) and informal education. In Wisconsin, ELP supports the Lake Sturgeon Bowl in Wisconsin, one of 25 regional competitions of the National Ocean Sciences Bowl (NOSB). The NOSB is an academic competition that engages high school students in learning about ocean sciences and related STEM careers while helping them become knowledgeable citizens and environmental stewards. ELP also supports the American Meteorological Society's DataStreme courses for K-12 educators through a grant and in-kind support. Local implementation teams in the state offer DataStreme courses that use weather, climate, and the ocean as contexts for teaching science and improving understanding about the Earth system.

Office of Oceanic and Atmospheric Research (OAR) – Wisconsin Sea Grant College Program
The National Sea Grant College Program (Sea Grant) is a federal-university partnership administered by NOAA that integrates research, extension outreach, and education. Sea Grant forms a national network of 34 programs in all U.S. coastal and Great Lakes states, Puerto Rico, and Guam. Headquartered at the University of Wisconsin-Madison, the Wisconsin Sea Grant College Program is statewide in scope, focused on basic and applied research, education and technology transfer dedicated to the sustainable use of the Great Lakes. In its 47-year history, Wisconsin Sea Grant has undertaken numerous research projects, including those that address contaminants in the Great Lakes, have discovered a patentable non-lethal test for viral hemorrhagic septicemia that kills Great Lakes fish and built and populated a Wisconsin coastal atlas to visualize lake features. Its outreach projects have helped prevent the spread of aquatic invasive species, assisted the shipping industry in protecting harbor infrastructure and helped coastal communities adapt to a changing climate. Administrative offices are located in Madison. Extension agents are located in Superior, Milwaukee, Bristol, Green Bay, and Manitowoc.

National Marine Fisheries Service (NMFS) - Restoration Center
The NOAA Restoration Center, within the Office of Habitat Conservation, works with private and public partners locally and nationwide to increase fisheries productivity by restoring coastal habitat. Projects support sustainable fisheries, help recover threatened and endangered species, and reverse damage from disasters like oil spills, ship groundings, and severe storms. Since 1992, they have provided more than $750 million to implement more 3,300 coastal habitat restoration projects. In the Great Lakes and Wisconsin, the Restoration Center focuses on restoring the most degraded environments--designated Areas of Concern (AOCs). Projects address loss of habitat and diminished fish and wildlife populations. For example, completing a shovel ready, large-scale habitat improvement and restoration project on Ulao

Creek within the Milwaukee River Watershed in the Village and Town of Grafton. NOAA also works with the Great Lakes Restoration Initiative (GLRI) to implement habitat restoration projects that will help improve AOCs.

National Marine Fisheries Service (NMFS) and National Ocean Service (NOS) - Damage Assessment, Remediation, and Restoration Program
NOAA's Damage Assessment, Remediation, and Restoration Program (DARRP) assesses and restores habitat, fisheries, protected species and recreational uses that have been harmed by oil spills, chemical releases, and ship groundings. Working with federal, state, and tribal entities, and responsible parties, we have recovered funding from responsible parties for restoration of critical habitats, fisheries, protected species and recreational uses nationwide. These projects promote recovery of the ecosystem and provide economic benefits from tourism, recreation, green jobs, coastal resiliency, property values and quality of life.

National Ocean Service (NOS) - Great Lakes Bay Watershed Education and Training Program
The NOAA Bay Watershed Education and Training (B-WET) program is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. The primary delivery of B-WET is through competitive funding that promotes Meaningful Watershed Educational Experiences (MWEEs). B-WET currently serves seven areas of the country: California, Chesapeake Bay, Great Lakes, Gulf of Mexico, Hawai'i, New England, and the Pacific Northwest. The Great Lakes B-WET program recognizes that knowledge and commitment built from firsthand experience, especially in the context of one's community and culture, is essential for achieving environmental stewardship. Great Lakes B-WET responds to regional education and environmental priorities through local implementation of competitive grant funds. Please see regional funding opportunity for priorities and eligibility details.

National Ocean Service (NOS) - National Water Level Observation Network
NOS operates five long-term continuously operating water level stations in the state of Wisconsin which provide data and information on Great Lakes and interconnecting waterways data and lake level regulation and are capable of producing real-time data for storm surge warning. These stations are located on Lake Michigan at Milwaukee, Kewaunee, Sturgeon Bay Canal, and Green Bay.

National Ocean Service (NOS) - Coastal and Estuarine Land Conservation Program
The Coastal and Estuarine Land Conservation Program (CELCP) brings conservation partners together to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical, or aesthetic values. Subject to availability of funding, the program provides state and local governments with matching funds to purchase coastal and estuarine lands or obtain conservation easements for important lands threatened by development. Since 2002, the program has protected more than 110,000 acres of coastal land nationally, including over 16,000 acres protected as in-kind matching contributions. In Wisconsin, NOAA awarded three grants with CELCP funding, and another seven projects were funded by the EPA's Great Lakes Restoration Initiative. All ten projects have been successfully completed, protecting these lands in perpetuity.

National Ocean Service (NOS) - **Coastal Management Fellowship**
This program matches postgraduate students with state and territory coastal zone programs to work on two-year projects proposed by the state or territory. The Wisconsin Coastal Management Program is hosting a fellow from 2019-2021 who is applying geospatial technologies and resources developed by Wisconsin's partners, like NOAA Digital Coast, to Great Lakes coastal hazard issues, culminating in a self-guided project to develop a multi-hazard vulnerability viewer.

National Ocean Service (NOS) – Digital Coast Fellowship

This program matches postgraduate students with members of the Digital Coast Partnership to work on two-year projects proposed by the partner organization. The Association of State Floodplain Managers and Coastal States Organization are hosting a fellow in Madison, Wisconsin from 2020-2022 to research, develop guidance and training, and provide direct technical assistance to coastal communities dealing with repetitive loss properties.

National Ocean Service (NOS) – National Coastal Zone Management Program
Through a unique federal-state partnership, NOAA's Office for Coastal Management works with the Wisconsin Department of Administration, in partnership with the Department of Natural Resources and other state agencies, to implement the National Coastal Zone Management Program in Wisconsin. NOAA provides the state coastal management program with financial and technical assistance to further the goals of the Coastal Zone Management Act and ensure coastal waters and lands are used to support jobs, reduce use conflicts, and sustain natural resources.

National Ocean Service (NOS) – National Coastal Resilience Fund
The National Coastal Resilience Fund is a partnership effort between NOAA and the National Fish and Wildlife Foundation (NFWF) to restore, increase, and strengthen natural infrastructure to protect coastal communities, while also enhancing habitat for fish and wildlife. In Wisconsin, one project was awarded in FY18 to construct submerged sills and living shorelines that will increase coastal resiliency and restore terrestrial and aquatic habitat along the Lake Michigan shoreline in southeastern Wisconsin.

National Ocean Service (NOS) - U.S. Integrated Ocean Observing System (Great Lakes Observing System)
The U.S. Integrated Ocean Observing System, or IOOS®, is a federally and regionally coordinated observing system with 17 interagency and 11 regional partners. The System addresses regional and national needs for coastal, ocean, and Great Lakes data and information. This includes gathering and disseminating regional observations; data management; modeling and analysis; education and outreach; and research and development. The Great Lakes Observing System (GLOS), one of the 11 IOOS regional coastal ocean observing systems, provides public access to critical, real-time and historical data and information about the Great Lakes, St. Lawrence River and interconnecting waterways for use in managing, safeguarding and understanding these immensely valuable freshwater resources. GLOS is intended to gather and integrate chemical, biologic and hydrologic data, and monitor lake conditions and trends over time.

National Ocean Service (NOS) – Environmental Sensitivity Index (ESI) maps/data
Environmental Sensitivity Index (ESI) maps are an OR&R product that provides oil spill responders and planners with a concise summary of coastal resources that could be at risk if an oil spill occurs nearby. ESI maps were originally created for the Great Lakes between 1985-1994 (depending on region) and had not been updated for decades due to limited resources. In 2020, with funding from the EPA through the Great Lakes Restoration Initiative, OR&R completed an update of the sensitivity maps/data for the Straits of Mackinac and the St. Clair-Detroit River System. OR&R recently established a new agreement with the U.S. Coast Guard to update the ESI maps for two more regions: St. Marys River, connecting Lake Superior to Lake Huron, and St. Lawrence River, from its start in Lake Ontario to the U.S./Canadian Border. These ESI updates will be completed by mid-2021. Spill responders and planners for the Great Lakes region and Canada will benefit from the updated sensitivity data. OR&R continues to seek opportunities to update these key components of emergency response planning, preparedness, and response. When completed, the ESI maps and data will be available for download from the OR&R website, as well as included in the Environmental Response Management Application (ERMA®) for the Great Lakes.

National Ocean Service (NOS) - Scientific Support Coordinator and Regional Resource Coordinator
NOAA's Office of Response and Restoration (OR&R) brings decades of experience, technical expertise and scientific analysis in response to oil and hazardous chemical spills. Nine regionally based Scientific Support Coordinators (SSCs)

harness the input of a multi-disciplinary team to address issues such as oil slick trajectory forecasting, environmental tradeoffs, best practices, resources at risk, oil science and properties, and chemical hazard assessment to reduce risks to coastal habitats and resources. The SSC works directly with the U.S. Coast Guard and the U.S. Environmental Protection Agency to provide critical scientific support to the Federal On-Scene Coordinator. OR&R also helps develop preparedness plans that identify spill response actions with the greatest environmental benefit and trains hundreds of members of the response community each year on the scientific and technical aspects of spills. OR&R's Regional Resource Coordinators (RRCs) provide scientific and technical expertise and timely response to oil spills or hazardous materials releases to collect information, samples, and evidence that are time dependent and critical to support natural resource damage assessments throughout the coastal US. RRCs work on multi-disciplinary scientific, economic, and legal teams and are responsible for determining and quantifying injuries to NOAA trust natural resources through determination of injuries and pathway, and demonstration of causal mechanisms. The goal of the RRCs efforts is to determine, often through the Damage Assessment, Remediation, and Restoration Program, the appropriate amount and type of restoration required to restore injured NOAA trust resources and compensate the public for their lost use. To date, DARRP and co-trustees have recovered over $37M for restoration of natural resources injured by waste site releases in Wisconsin.

National Ocean Service (NOS) - OR&R Marine Debris Program (MDP)
The NOAA Marine Debris Program (MDP) leads national and international efforts to research, prevent, and reduce the impacts of marine debris. The program supports marine debris removal, prevention, and research projects in partnership with state and local agencies, tribes, non-governmental organizations, academia, and industry. The MDP Great Lakes Regional Coordinator supports coordination efforts with regional stakeholders, provides support to grant-funded projects, tracks progress of projects, and conducts regional marine debris outreach to local audiences. In partnership with Wisconsin Sea Grant, the MDP is working to bring marine debris education into schools in Milwaukee. With the assistance of local partners, they will develop an education toolkit to allow students to examine the waste they produce and to understand marine debris issues in the Great Lakes. The MDP has also worked with Great Lakes stakeholders to develop the Great Lakes Marine Debris Action Plan, which provides a road map for strategic progress in making the Great Lakes, its coasts, people, and wildlife free from the impacts of marine debris.

National Ocean Service (NOS) - Students for Zero Waste Week
Students are inviting their local communities to "Go Green and Think Blue" by joining them in the annual *Students for Zero Waste Week campaign*. During this campaign led by the Office of National Marine Sanctuaries, students focus on reducing land-based waste in order to protect the health of local marine environments. These young leaders are raising awareness of how single-use plastic and other types of litter affect the health of local watersheds, national marine sanctuaries, and the ocean. In addition, some schools are looking at ways to reduce their energy use on campus with hopes of raising awareness of how the burning of fossil fuels also impacts the health of the ocean.

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